

Restoring Nature

The "river of grass," so elegantly described by Marjorie Stone-man Douglas, is but a part of the South Florida ecosystem. In its natural state, the system extends from the middle of the state southward to the living coral reef.

But the South Florida ecosystem is stressed. Growing urban areas, agricultural runoff, ever-increasing tourist interest and various other human and natural occurrences have come together to adversely affect one of the planet's more unique and fragile ecosystems. Extensive efforts in the first half of this century to reclaim "worthless" swampland for development and agriculture have blockaded and re-routed the natural watershed to change the way that the system functions.

There is good news, however. Massive efforts to cleanse and restore the natural flow of water through the region are underway. Everyone whose life, livelihood, or interest revolves around South Florida is coming together to solve the problems with this watershed.

The South Florida Ecosystem Restoration Task Force and the Governor's Commission for a Sustainable South Florida are working together on the common goal to keep South Florida healthy for generations to come. These combined efforts involve federal, state, tribal, and local governments, private businesses, and the general public. They are coming together to look beyond jurisdictional boundaries -- artificial lines drawn on maps by human hands -- to see the South Florida ecosystem at large. They are fitting the human component into the equation and finding ways to restore the ecosystem so that natural habitats and human economies can thrive hand in hand.



Stephen Frink



Stephen Frink



Bill Harrigan



Bill Keogh



Bill Harrigan

A Geological and Historic Time Capsule

The Florida Keys and the Florida Reef tract extend some 220 miles to the south of the Florida peninsula. Covered primarily in mangrove and tropical hardwood hammock, the islands are formed of ancient coral called Key Largo limestone, and layers of Miami Oolite -- ancient layers of sand shoals. Tidal channels meander between the islands, connecting the waters from the Gulf of Mexico and Florida Bay to the tropical currents of the Gulf Stream in the Florida Straits.

The geological processes that formed the reefs and the Florida Keys as we know them today began during the Pleistocene Period -- between 100,000 and 125,000 years ago. During this era, melting glaciers following an ice age raised sea level to where water covered much of the Florida peninsula and all of the area that is now the Keys.

The warm temperatures and shallow waters that covered this area were ideal for coral growth. Scientists have found that the Keys developed into a nearly continuous coral reef tract from the area that is now Miami to the Dry Tortugas. Core samples show massive hard corals and point to a larger, denser coral reef system than the living reef that now lies off our shores.

When the last ice age struck, about 28,000 years ago, sea levels dropped drastically, and the Keys, as well as Florida Bay, were transformed into swamp, then dry land. Then, about 11,000 years ago, water levels moderated to about where they are now, leaving the Keys exposed and filling Florida Bay. From these ancient reef formations, two types of substrate were formed: Miami Oolite, and Key Largo Limestone. Both of these rock types are the remnants of fossil coral ecosystems, and both are extremely porous.

The unique geological history of the Florida Keys with its treacherous shallows and hidden reef, set the stage for a colorful human history. Shoals, sand flats, storms, and the coral reef itself have stymied many navigators through the centuries, and taken their toll on many ships.

Since the 1500's over 800 documented shipwrecks have occurred around the reefs and sand flats of the Florida Keys. These vessels, which now rest upon the ocean floor, carried a wide variety of cargoes throughout the centuries, cargoes that ranged from settlers, slaves, and soldiers, to merchandise and treasure. During the early twentieth century the "wreckers" of the keys salvaged virtually everything they could find, leaving behind little of the original wrecks. These wrecks and the stories that surround them give the Keys a rich and exciting maritime culture. In addition to the human aspect, these shipwrecks, often referred to as "windows to the past" also serve as artificial reefs, providing an anchor and abode for the brilliant and diverse life that inhabits these waters.



Stephen Frink

Biscayne National Park

A Majestic Place

The Florida Keys portion of the South Florida ecosystem is a complex interrelationship between a variety of habitats. Three distinct habitat types dominate the seascape.

Lush, green mangroves fringe the shores of the Florida Keys and create a densely interwoven forest that provides coastal protection, acts as a substrate for algae, barnacles, and other organisms, and offers a splendid

nursery area for young fish and invertebrates. These unique plants thrive in the Keys because they are able to derive fresh water out of salt water. Red mangroves, nicknamed "the walking tree" for their squatting prop roots,

form islands that characterize the unique landscape of the Florida Keys. Black mangroves are easily identifiable by their emergent root

propagules, or "dead men's fingers" that point skyward around the plants. White mangroves, although less common, are another species found in the Keys, usually on higher ground.

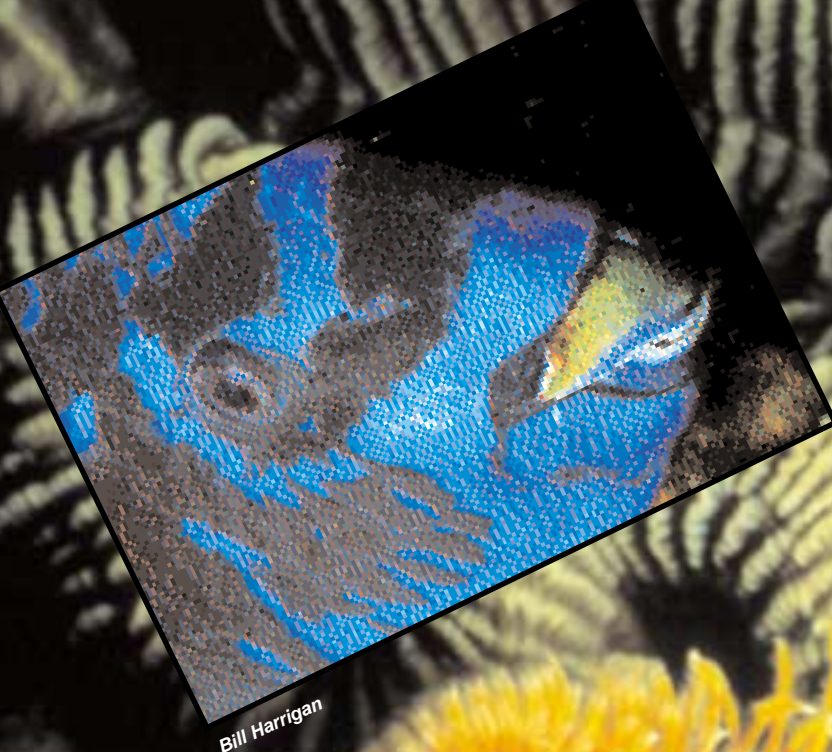
Seagrasses sway gently in shallow waters surrounding the Florida Keys and provide food, shelter and breeding grounds to a multitude of fish and invertebrates. Although it is less glamorous than some of the other features of the Keys habitat, seagrass is an integral link in the complex chain of life that inhabits these waters. Turtle grass, with its wide blades, and manatee grass, with skinny round blades, are both a favorite feast of the endangered West Indian manatee and the green sea turtle. Shoal grass, a narrow-bladed relative, is found in lesser abundance. All seagrasses are flowering plants. Essential to the marine community of the Florida Key, seagrasses bind sand and silt which can cloud the water and shade or smother coral. Recovery of damage to seagrass beds from errant propellers may take up to seven years, and in some cases, it may never recover at all.

The most well-known habitat type in the Florida Keys National Marine Sanctuary is the living coral reef. Coral colonies, composed of thousands of tiny coral polyps, produce a hard calcium carbonate skeleton that make it appear, at first glance, to be some sort of colorful rock. But the surface of these star corals, brain corals, and others is a complex network of living animals. Less easily recognized as animals are soft corals, or Gorgonians, such as sea fans and sea whips. They too are made up of colonial animals called polyps. The skeleton of the soft corals includes a flexible core which allows them to sway with the ocean's currents and waves like colorful exotic plants.

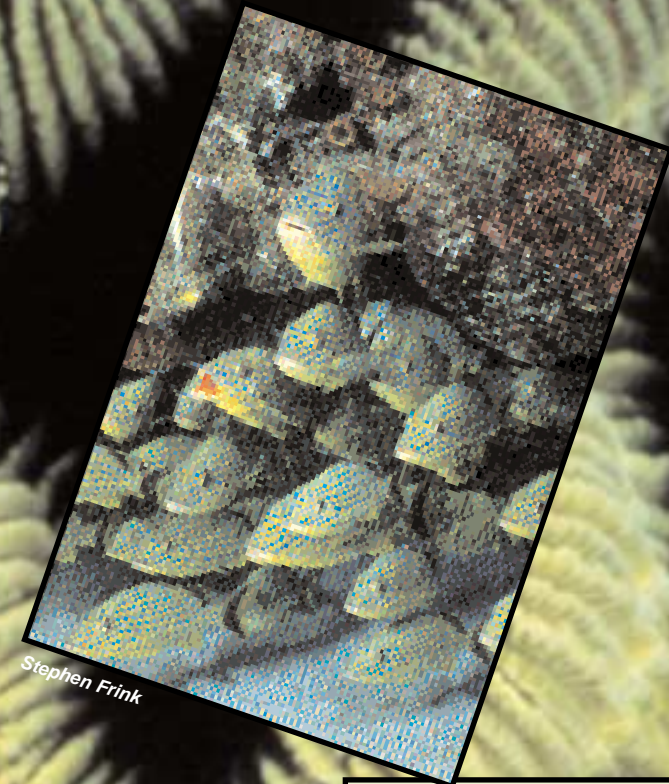
The coral reef boasts a biological diversity rivaling that of a tropical rain forest, with thousands of fish and invertebrates spending most of their lives in its hospitable nooks and crannies. The Florida Keys is an excellent place to observe life on classic spur-and-groove reefs. Offshore reef formations running parallel to the keys are interspersed with occasional sandy bottoms. This three dimensional arrangement, with its "walls" of coral, greatly increases habitable area, creating niches populated by plants and animals with highly specialized adaptations. In addition, abundant patch reefs and hardbottom pepper the nearshore waters all along the Keys.



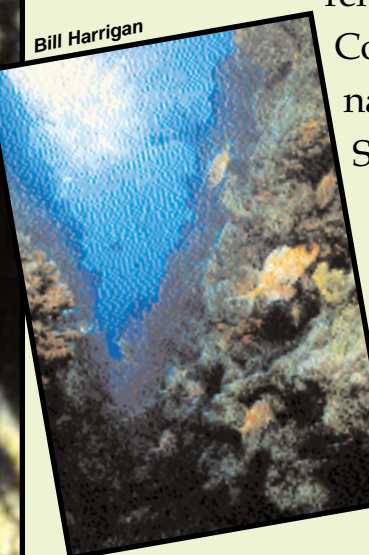
Stephen Frink



Bill Harrigan



Stephen Frink



Bill Harrigan



Walter Stearns

Working Together

The State of Florida and the federal government have been working together for over 25 years to protect the marine environment in the Florida Keys. This effective partnership continues today in the Florida Keys National Marine Sanctuary. Such a combined effort provides a comprehensive ecosystem management approach for the long-term protection of the diverse natural resources in Keys waters.

The National Oceanic and Atmospheric Administration (NOAA), part of the U.S. Department of Commerce, is the federal agency that oversees the National Marine Sanctuary program. The Florida Department of Environmental Protection (FDEP) is the state partner involved in Sanctuary management. Together these agencies cooperate and consult with each other on how to ensure the protection of Sanctuary resources.

Tropical Paradise

Some people call it a tropical paradise: the shallow waters surrounding the delicate chain of islands or keys extending from the southern tip of Florida. Others call it the Florida Keys National Marine Sanctuary. The Florida Keys and its marine environment offer unparalleled beauty and diversity.

Teeming with thousands of colorful tropical fish, marine invertebrates and plants, the waters of the Florida Keys are home to the world's third largest barrier coral reef system, thousands of acres of seagrasses, and hundreds of miles of mangrove-fringed shoreline. The waters surrounding the Florida Keys have long been appreciated for their unique beauty and the abundance of marine life they support. That world-

renowned appreciation was echoed by Congress when, in 1990, they designated the 2800 square-nautical-mile Sanctuary.

The special beauty of the Florida Keys National Marine Sanctuary brings with it some unique challenges for protection. Every year, more than two and a half million people come to the Keys to experience the wonders of the waters. Year round, visitors and residents alike dive, snorkel, fish, boat, and swim in Sanctuary waters. A system of mooring buoys, channel markers, and special marine zones is in place to assure that the diverse and delicate ecosystem of the Florida Keys National Marine Sanctuary remains healthy for generations to come.

Regulated Activities

Ecological Reserve and Sanctuary Preservation Areas

The following activities are prohibited in the Ecological Reserve (ER) and Sanctuary Preservation Areas (SPA's):

- o Discharging any matter except cooling water or engine exhaust
- o Fishing by any means, removing, harvesting, or possessing any marine life, Catch and release fishing will be allowed in Conch Reef, Alligator Reef, and Sombraero Reef, and Sand Key SPAs only.
- o Touching or standing on living or dead coral.
- o Anchoring on living or dead coral, or any attached organism.

Sanctuary-Wide Regulations

The Florida Keys National Marine Sanctuary is a national treasure that belongs to every one of us. To ensure that this unique and complex marine environment is here for the use and enjoyment of future generations, the following activities are regulated within the Sanctuary.

These regulations apply throughout the entire area of the Sanctuary and their purpose is to protect Sanctuary resources from both direct and indirect threats. These regulations focus on habitat protection, reducing threats to water quality, and minimizing human impact to delicate resources. The following activities are prohibited Sanctuary-wide:

- o Removing, injuring, or possessing coral or live rock
- o Discharging, depositing, trash or other pollutants.
- o Dredging, drilling, prop, dredging or otherwise altering the seabed, or placing or abandoning any structure on the seabed.
- o Operating a vessel in such a manner as to strike or otherwise injure coral, sea grass, or other organisms attached to the seabed, or cause prop-scutting.
- o Having a vessel anchored on living coral in water less than 40 feet deep when you can see the bottom. Anchoring on hardbottom is allowed.
- o Operating a vessel at more than idle speed/ no wake within 100 yards of residential shorelines (except in marked channels), stationary vessels, and navigational aids
- o marking reefs.
- o Operating a vessel at more than idle speed/ no wake within 100 feet of a "divers down" flag.
- o Diving or snorkeling without a dive flag.
- o Operating a vessel in such a manner which endangers life, limb, marine resources, or property.
- o Releasing exotic species.
- o Damaging or removing markers, mooring buoys, scientific equipment, boundary buoys, and trap buoys.
- o Moving, removing, injuring, or possessing historical resources.
- o Using or possessing explosives or electrical charges.
- o Collecting marine life species -- tropical fish, invertebrates, and plants -- except as allowed by Florida Marine Life Rule (46-42 F.A.C.). Sanctuary regulations have been established to complement this rule and apply throughout the Sanctuary.

Existing Management Areas

The Sanctuary overlaps the boundaries of already existing state and federal management areas. Previously established regulations in these areas continue to remain in effect. The following is a summary of the prohibited activities within the Key Largo and Looe Key Existing Management Areas. Refer to the full regulations in the CFR 15 Part 929.

- o Removing, taking, spearing, or otherwise damaging any coral, marine invertebrates, plant, soil, rock, or other material; however, commercial taking of spiny lobster and stone crab by trap and recreational taking of spiny lobster by hand or hand gear consistent with the applicable Fishery Management Plan and regulations is allowed in certain areas
- o Taking any tropical fish
- o Spearfishing
- o Possession of spearfishing equipment, except while passing through interruption.

Wildlife Management Areas

There are 27 Wildlife Management Areas. The majority of these areas (20) fall under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) and Sanctuary regulations vice (USFWS) and Sanctuary regulations have been established to complement the existing USFWS management plan. Public access restrictions in these areas include speed only/no wake, no access buffer, no motor, and limited closures.



How You Can Help

There are many ways that visitors to the Keys can help improve the health of the coral reef ecosystem. Since visitors to the Sanctuary can enter the area from 360 degrees around the compass, by land and by water, it is incredibly challenging to get critical information to the public. Signs at local boat ramps, brochures, and a team of volunteers who distribute literature all provide helpful information about these fragile resources.

Be proactive! Get a copy of the information you need, and learn how to enjoy yourself without leaving an impact on the marine environment. If you plan to operate a boat, use the appropriate navigation charts and become familiar with the local waters. Learn how to navigate through marked channels and stay in deep water.
P.O. Box 500368
Marathon, FL 33050
305.743.2437
305.743.2357 (fax)
fknms@ocean.nos.noaa.gov

What is a National Marine Sanctuary?

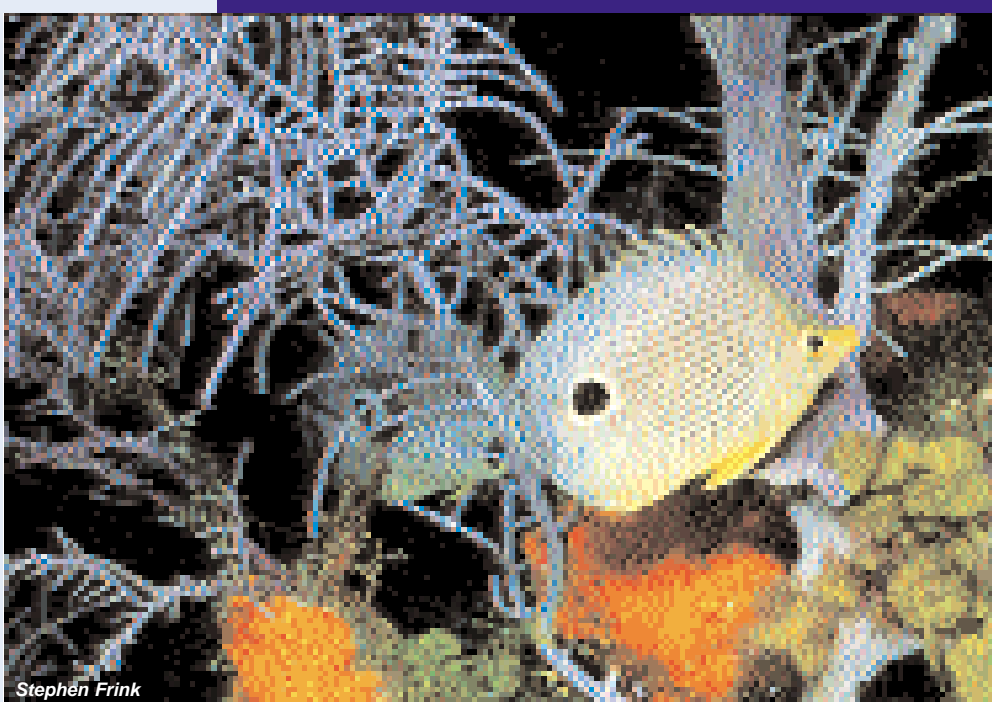
For over two decades, the Department of Commerce's National Oceanic and Atmospheric Administration's National Marine Sanctuary program has fostered an ocean ethic that encourages all of us to share a commitment to protect our nation's priceless marine resources.

This ocean ethic recognizes the need for sustainable use and requires that sanctuaries take a lead role in managing and protecting marine and coastal protected areas for the benefit of this and future generations.

In a number of profound ways, sanctuaries promote this ocean ethic - through research into the workings of complex ecosystems, through monitoring environmental changes over time, and through the tireless efforts of volunteers, researchers, and educators. They carry the message that the oceans, just as much as our nation's land, need help and deserve our respect.

Through education and volunteer programs, sanctuaries enable a new generation of marine advocates to recognize the need for balancing human and environmental needs and to promote the importance of sustainability. Increasingly, Americans understand that our oceans need protection. Today a growing number of citizens see national marine sanctuaries as important pieces of the larger mosaic of environmental conservation.

As we prepare for a new century, the sanctuary program continues to provide leadership in this growing ocean ethic of marine conservation.



Stephen Frink

Florida Keys



Stephen Frink